

MAY 04 2007

## TRANSMITTAL OF APPEAL BRIEF (Small Entity)

Docket No.  
121056-009

In Re Application Of: Yasushi KOHNO et al.

Application No.	Filing Date	Examiner	Customer No.	Group Art Unit	Confirmation No.
09/837,020	April 18, 2001	Andrea Valenti	35684	3643	7531

Invention:

METHOD OF PREVENTING DEFECTIVE GERMINATION OR GROWTH OF PLANT

COMMISSIONER FOR PATENTS:

Transmitted herewith is the Appeal Brief in this application, with respect to the Notice of Appeal filed on:

December 29, 2006

☒ Applicant claims small entity status. See 37 CFR 1.27

The fee for filing this Appeal Brief is: \$250.00

☐ A check in the amount of the fee is enclosed.☒ The Director has already been authorized to charge fees in this application to a Deposit Account.☒ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment to Deposit Account No. 12-2136 I have enclosed a duplicate copy of this sheet.☐ Payment by credit card. Form PTO-2038 is attached.**WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.**  
Signature

Michael S. Gzybowski

Dated: April 30, 2007

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to "Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450" [37 CFR 1.8(a)] on

April 30, 2007

(Date)



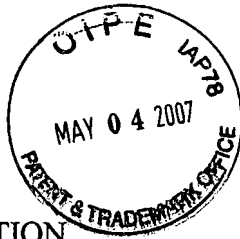
Signature of Person Mailing Correspondence

Debra L. Burns

Typed or Printed Name of Person Mailing Correspondence

CC:

Appl. No. 09/837,020



PATENT APPLICATION

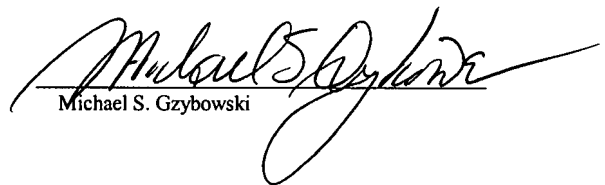
*IN THE UNITED STATES PATENT AND TRADEMARK OFFICE*

Group }  
Art Unit: 3643 }  
Attorney }  
Docket No.: 121056-009 }  
Applicant: Yasushi KOHNO et al. }  
Invention: METHOD OF PREVENTING DEFECTIVE }  
GERMINATION OR GROWTH OF PLANT }  
Serial No: 09/837,020 }  
Filed: April 18, 2001 }  
Examiner: Andrea Valenti }

Certificate Under 37 CFR 1.8(a)

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

on April 30, 2007

  
Michael S. Gzybowski

BRIEF ON APPEAL

Commissioner of Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

Further to appellants' Notice of Appeal filed December 29, 2006 in connection with the above-identified application appellants submit the present Brief on Appeal.

REAL PARTY IN INTEREST

05/04/2007 TBESHAH1 00000032 122136 09837020

01 FC:2402 250.00 DA

Appellants have assigned this application to Agritecno Yazaki Co., Ltd. in an assignment which was executed by the inventors on April 6, 2001, filed in the United States Patent and

Appl. No. 09/837,020

Trademark Office on April 18, 2001 and recorded on April 18, 2001 at Reel No. 011723 and Frame No. 0926.

#### RELATED APPEALS AND INTERFERENCES

There are no related applications that are on appeal or involved in any interference.

#### STATUS OF CLAIMS

Claims 1, 3, 7, 13, 15 and 16 are pending in this application. Claims 1, 3, 7, 13, 15 and 16 stand under final rejection, from which final rejection of claims 1, 3, 7, 13, 15 and 16 this appeal is taken. Claims 2, 4-6, 8-12, and 14 have been canceled.

#### STATUS OF AMENDMENTS

No Amendment(s) after Final Rejection was/were filed in this application.

#### SUMMARY OF CLAIMED SUBJECT MATTER

The present invention is directed to a method of preventing defective germination of plant seeds or growth of plants.

As set forth in the paragraph bridging pages 2 and 3 of appellants' specification, the method comprises the steps of: encapsulating one or more plant seeds in an aqueous gel capsule; refrigerating the encapsulated plant seed(s) under conditions in which the encapsulated seed(s) will not germinate; and sowing the plant seed(s).

Other embodiments of appellants' invention, as listed on page 3, lines 6-10 include: the size of the seeds is equal to or less than 1 mm; the refrigeration process is carried out in a dark place; the plant seeds are those of a light germinator; and the seed encapsulated in the aqueous gel capsule is a pelletized seed.

As discussed in the paragraph bridging pages 4 and 5 of appellants' specification, if the seeds are allowed to germinate during the refrigeration process, the germ or root that comes out of the gel capsule is likely to be damaged during subsequent handling and sowing.

Comparative test results which are provided in appellants' examples on pages 6-8 demonstrate the improvements in germination, bolting, efflorescence, rosette-formation, and cut flower length.

#### GROUND OF REJECTION TO BE REVIEWED ON APPEAL

Whether claims 1, 3, 7, 3, 15 and 6 are unpatentable over Hinkes in view of Carlson et al. under 35 U.S.C. §103(a).

ARGUMENT

The Examiner has relied upon Hinkes as teaching:

...a method encapsulating at least one natural plant seed of a light germinator (Hinkes Col. 1 line 60-65), the at least one plant seed having a size of 1 mm or less (Hinkes Col. 1 line 16-20); an encapsulating the seed (Hinkes Col. 1 line 49 and Col. 2 line 18).

The Examiner concedes that Hinkes fails to teach:

...that the coating is an aqueous gel capsule having a moisture content of at least 90% by weight and the steps of refrigerating the at least one plant seed under on of a humidifying conditions or in an airtight container so that moisture is not lost from the aqueous gel capsule and under the condition that the at least one plant seed does not germinate; and sowing the at least one plant seed.

The Examiner has accordingly relied upon Carlson as teaching:

...that it is general knowledge in the art of plant husbandry to encapsulate seeds with an aqueous gel coat (Carlson Col. 5 line 4-7) for long-term storage (Carlson abstract line 7) and to store the seeds under refrigerated conditions in an airtight container (Carlson Col. 22 line 61-67) so that the plant does not germinate and then to plant the seed.

In combining the teachings of Hinkes and Carlson the Examiner takes the position that:

It would have been obvious...to modify the teachings of Hinkes with the teachings of Carlson at the time of the invention since the modification is merely the selection of a seed coat selected for its known advantage of improving germination as taught by Carlson (Carlson Col. 1 line 65-66). Hinkes teaches there is sufficient motivation in the art to modify a celery seed with a seed coat to improve mechanical planting (Hinkes Col. 1 line 50-53). Carlson is cited merely to teach that seeds coated with aqueous gel coats are old and notoriously well-known in the art along with the commonly practiced procedures of long-term storage of coated seeds.

Hinkes is directed to an improved coating composition for seeds that “permits utilization of mechanized equipment for many of the operations formerly carried out manually.”

The coating composition developed by Hinkes comprises at least 50% by weight of an amorphous silica, the remainder including at least about 5% by weight montmorillonite and at least about 10% by weight attapulgite.

In particular, the coating compositions are good for a light germinator such as celery seed since the compositions do not shield light too much when the planted seed must germinate after sowing.

Further, Hinkes teaches that the coating composition is formulated so that:

...when exposed to water (as when the seed is planted) opens and breaks away from the seed, thereby permitting light to penetrate therein. (Column 2, lines 9-14)

It is important to note that Hinkes is not specifically concerned with storing the coated seeds, but is rather concerned with developing a coated seed that can be mechanically planted.

Carlson et al. is directed to the long-term storage of “manufactured seeds.” For this purpose, Carlson et al. provides “manufactured seeds” which comprise totipotent plant “tissue” 12 and a protective gel capsule 14. (See Figs. 1 and 2). Carlson et al. does not teach “seed” in the sense of Hinkes or appellants’ invention.

Carlson et al. teach “a unit of totipotent plant tissue that can be sown like natural seed and produce viable germinants.”

The “manufactured seed coat” is stated to protect the totipotent plant tissue from mechanical damage, desiccation, and attack by pathogens, pests, etc.

Carlson et al. teach that “preferred embodiments of manufactured seeds according to the present invention, the unit of totipotent plant tissue preferably is developed sufficiently to have a shoot end and a radicle end.”

Carlson et al. teach sparging the manufactured seeds with a respiration-limiting gas such as carbon dioxide or nitrogen, and then sealing the manufactured seeds in a closed container that is filled with the respiration-limiting gas for long term storage at 1°C.

As specifically taught at column 2, lines 54-58:

Such a manufactured seed can be prepared for long-term storage, for example, if the hydrated gel comprises an amount of respiratory-limiting gas sufficient to substantially reduce respiration of the totipotent plant tissue, including, for example, carbon dioxide or nitrogen.

As can be readily seen, Hinkes and Carlson et al. are directed to quite different technologies and have unrelated goals and objectives.

Nevertheless, the Examiner has taken the position that:

It would have been obvious.... to modify the teachings of Hinkes with the teachings of Carlson at the time of the invention since the modification is merely the selection of an alternate seed coat selected for its known advantage of improving germination as taught by Carlson

The Examiner’s position overlooks that Hinkes requires a specific seed coating composition that comprises:

...admixed materials have different swelling rates, so that when the dried coating is exposed to the moisture of the seed bed, there is a gradual swelling of the coating over a period of time, and this swelling continues after the hydration of the fastest swelling ingredient. The component having the slower rate of hydration continues to act as a binder during the hydration and swelling of the faster swelling component. This interplay of the forces generated causes one component to expand whereas the

other component restrains the coating to insure that the coating will open or expand much like the opening of petals of a flower and then will fall away from the seed rather than merely swelling and staying in place. In this manner, the underlying seed is exposed to moisture, air, and light shortly after being planted. This contrasts with conventional coatings which remain on the seed after planting to shield the seed from light and air for a longer time. (column 2, line 57 through column 3, line 7)

Moreover, Hinkes requires a coating composition which will allow light to germinate light germinating plant seeds.

Carlson et al., on the other hand teaches “manufactured seeds” that comprise totipotent plant tissue that are encapsulated in a hydrated gel capsule.

There is absolutely no basis for taking the position that it would be obvious to merely substitute the “alternate seed coat” of Carlson et al. for that of Hinkes.

In this regard, the Examiner has not established that the coating compositions of Hinkes and Carlson et al. are functional equivalents.

Certainly the hydrated gel of Carlson et al. will not function, i.e. open like a flower, in the same manner as the coating composition of Hinkes that includes components that swell at different rates.

Rather, the art teaches that they are not at all functional equivalents.

Moreover, Carlson et al. encapsulates “totipotent plant tissue” rather than plant seeds.

In contrast to both Hinkes and Carlson et al., the present invention is directed at preventing defective germination or growth of a plant.

Since neither Hinkes nor Carlson et al. teach or show any concern for preventing defective germination or growth of a plant, it is not seen where the teachings of these references, even if properly combined, would render applicants’ claimed invention obvious. At best,



Carlson teaches controlling the germination of "plant tissue" by controlling the respiration-limiting gas, but otherwise has nothing to do with the germination of plant seeds.

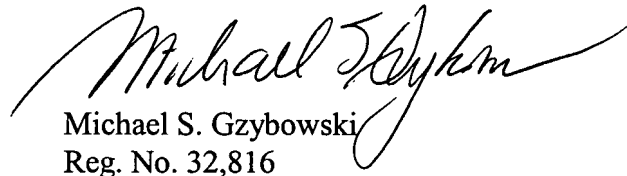
### CONCLUSION

For the reasons advanced above, appellants respectfully contend that the rejections of claims 1, 3, 7, 13, 15 and 16 under 35 U.S.C §103(a) as being unpatentable over Hinkes in view of Carlson improper as the examiner has not met his burden of establishing a prima facie case of obviousness of appellants' claimed invention.

Reversal of the outstanding rejection on appeal is respectfully requested.

To the extent necessary, a petition for an extension of time under 37 CFR §1.136 is hereby made. Please charge the fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 12-2136 and please credit any excess fees to such deposit account.

Respectfully submitted,

  
Michael S. Gzybowski  
Reg. No. 32,816

BUTZEL LONG  
350 South Main Street  
Suite 300  
Ann Arbor, Michigan 48104  
(734) 995-3110

CLAIMS APPENDIX

Claim 1. A method of preventing defective germination or growth of a plant comprising the steps of:

encapsulating at least one plant seed of a light germinator in an aqueous gel capsule having a moisture content of at least 90% by weight, the at least one plant seed having a size of 1 mm or less;

refrigerating the at least one plant seed under one of a humidifying condition or in an airtight container so that moisture is not lost from the aqueous gel capsule and under the condition that the at least one plant seed does not germinate; and

sowing the at least one plant seed.

Claim 3. The method of preventing defective germination or growth of a plant according to claim 1, wherein the refrigeration is carried out in a dark place.

Claim 7. The method of preventing defective germination or growth of a plant as claimed in claim 1, wherein the at least one plant seed encapsulated in an aqueous gel capsule is a pelletized seed.

Claim 13. The method of preventing defective germination or growth of a plant according to claim 1, wherein the step of refrigerating the at least one encapsulated plant seed is conducted at a

temperature of about 15°C or lower and for a sufficient period of time to improve the germination of the at least one encapsulated plant seed as compared to non-refrigerated encapsulated plant seeds.

Claim 15. The method of preventing defective germination or growth of a plant according to claim 1, wherein the at least one plant seed comprises a seed of at least one of *Eustoma russellianum*, *begonia*, *Campanula portenschlagiana*, large-flowered *Campanula portenschlagiana*, *Digitalis purpurea*, *Primula malacoides*, *Primula obconica*, *Aquilegia*, *Almeria*, *Callistephus chinensis*, *Dianthus*, *Echinacea purpurea*, *Erigeron*, *Gaillardia*, *Helianthus annuus*, *Helenium autumnale*, *Heliopsis*, *Heuchera*, *Incarvillea delavayi*, *lychnis*, *salvia*, lettuce, tobacco, *perilla*, fig, burdock, mitsuba and celery.

Claim 16. The method of preventing defective germination or growth of a plant according to claim 1, wherein the gel capsule comprises at least one of Gellan gum, xanthan gum, Locust bean gum, carboxymethyl cellulose, pectin, gelatin, Carrageenan, sodium polyacrylate, sodium alginate, and agar.

Appl. No. 09/837,020

## EVIDENCE APPENDIX

Not Applicable

Appl. No. 09/837,020

RELATED PROCEEDINGS APPENDIX

Not Applicable